

CHAPTER 8

ECONOMIC INSTRUMENTS

Political and economic processes are directly interlinked in the political regulation of the forest industry. The profitability of forestry enterprises is a key factor in forest policy. At the same time, policy making also directly affects economics, for instance by providing financial support or levying taxes.

Economic instruments are all those political means of intervention which formally influence social or economic action through the exchange of "economic values."

Politics makes direct use of economic values to regulate action taken by forest owners, as well as the general public. These economic values usually constitute money, but services (such as maintenance) and goods can also be involved (Thieme 1995). The exchange of these values is subject to comprehensive regulation in the market economy. These economic processes only become economic instruments if they immediately serve forest policy objectives. Maximizing economic efficiency is not the focus of their political implementation. Instead, policy making uses the highly effective nature of economic mechanisms to pursue public objectives in general.

In Germany forest policy is also obliged to follow the regulatory concept of a the social market economy. The general political framework should thus ensure that the market economy functions properly. Forest policy also counts on forestry objectives to be fulfilled via self-regulation of the market. When this fails, however, forest policy intervenes, preferably by providing financial support. In addition, the state's need for resources is closely connected to business. The state secures its continued existence by levying taxes. It takes for granted the unavoidable intervention in business generated by mandatory taxes and fiscal charges, yet it attempts to make use of producers' and consumers' defensive maneuvers to achieve its own political goals.

On an informal level, economic instruments are very significant, since economic processes can be universally applied by politicians with a high degree of efficiency to increase their own power and realize their self-interests. Regarding the wide-scoped business activities of the state in forestry, the reason for them is not the requirements of the market economy, but the informal influence that politics can have by using economic instruments. The elaboration of the political use of self-regulation in the market economy, as well as financial support, extension services and taxes, thus applies to both formal and informal processes.

8.1. Self-Regulation of the Market Economy

8.1.1. Maximized Efficiency of the Forest Sector in the Market Economy

Forestry production including the provision of forest goods and services, such as timber, hunting, recreation and protection, are highly regulated by the market economy in Germany. The market exchange of forest products is a form a regulation, which plays a major role in solving conflicts of interest regarding the resources of the forest, and which indirectly depends on the general political framework. From a political perspective, the performance of the economy as a whole is very significant for achieving the goals of sustainable forestry and timber supply. In this sense, politics views business as an "indirect economic instrument." This political perspective should neither limit independent business, nor claim primacy for politics. However this would clearly indicate that forest policymakers assess the good of business according to their own values, rather than solely according to economic factors.

The market economy system of the forest industry is geared towards regulating the use of forests with the **goal of highest efficiency** according to the economic allocation model (Weimann 1996). The short supply of production factors (soil, manpower, capital and advance payments or deliveries) are employed using the technical production process that results in the economically optimum volume of forest products using the least possible production factors. This target described according to the Pareto optimum means that the resources are used where they result in the greatest productivity, and goods are consumed where they are of greatest use. Since helps to avoid wasting scarce resources, the economic allocation model should result in the optimum use of the forest, as a whole. The following analysis deals with the (normative) economic allocation model, from the

perspective of the market economy, in order to point out its importance for politics. The efficiency performance of the market economy is highly welcome to the forest sector which has made an obligation to serve the welfare of the general public. Those who benefit will not put up any resistance against the greatest economic use on a whole, as such. However, the economic allocation model leaves open the distribution of benefits among the population. Conflicts regarding distribution also arise in a fully functioning market economy, and these require additional regulation.

The model of the market economy has been characterized by numerous households and businesses whose actions are primarily determined by privately owned production means (Thieme 1995). Households use decentralized planning to optimize their income and its use. Forestry enterprises plan their production by using production factors and selling goods to make a profit. Markets, which constitute a network of businesses and households, create important regulatory incentives by regulating prices. Changes in price indicate scarceness of production factors or goods. They create incentives for market participants and exert pressure to use the highest efficiency for securing their chance in the market in order not to be forced from it. However, the markets also offer each participant alternatives in terms of production, consumption and jobs.

The degree to which the markets serve as coordinators, steering the forest industry towards optimum utilization on a whole, depends on the market conditions and the price determinants. Germany sets a framework in the form of an economic policy proceeding from an ideal-type market system to enable the market economy to function (Eucken 1990 (first published 1952)). Important elements include defining the private right of disposition, sanctions to combat activities reducing competitiveness, regulations for business relations, i.e. the right of codetermination, and regulations for supplying the overall economy with money. The forest industry is based upon this comprehensive regulatory framework of general economic policy, as well as regulations pertaining to its specific branches.

Forestry production is open to the maximization of economic efficiency, in part. **Timber** has been traded on the world markets for a long time. Three criteria serve to make wood a classic marketable good: 1) exclusiveness, i.e. someone may be prohibited from consuming it, 2) rivalry, i.e. the good that someone else is consuming cannot be consumed by someone else at the same time, and 3) scarcity as a result of being valued highly (Mantau 1994). A set of regulations established by policymakers promotes timber markets, including trade customs, categories and sales procedures. However, the

major decisions regarding supply, purchasing and pricing take place without any direct political regulation (in contrast to many agricultural commodities markets). Forest policymakers depend on the market economy to meet the public demand for wood. In Germany, this has been complicated by the sinking profitability of timber production over the past decades (Bergen 1995). The growing globalization of timber markets is increasing competition among roundwood suppliers and forcing the price down. If the state wants to continue relying on the market economy to supply timber, it should not shield the German forest industry with protectionist measures, instead it should trust the innovative capacity of forestry enterprises and give them sufficient leeway by reforming the regulatory instruments (Thoroe 1998). According to certain economic findings, forestry enterprises would be forced to produce more efficiently if subjected to market pressure, and they would be able to increase their yields by increasing their market orientation (Brabänder 1992). Even the usual state subsidy, granted in the face of a natural disaster caused by wind damage, may decrease efficiency, since compensation from the state for production risks can make forestry enterprises project low production costs, or save costs by not bothering with preventative measures.

8.1.2. Market Failure of Non-Timber Goods and Services Due to External Effects

Whereas forest policymakers recommend the greatest possible reserve and strictly promote self-regulation of the market to ensure efficient timber production, one cannot rely on self-regulation in the case of many other forest products and services. These **non-timber goods and services**, which are not subject to marketing by rule of their features, include climate protection, water protection, nature and environmental protection or recreational opportunities as public goods (non-exclusive and unrivaled), or common property (non-exclusive, but subject to rivalry) (Glück 1998). Due to a **lack of market economy regulation, there is danger of insufficient supply**, since forestry enterprises have no incentive to offer these products or services, and the demand for free non-timber goods and services is not subject to a price.

In practice, however, a great variety of non-timber goods and services are provided without any market incentive. The reason for this lies in coupled production in the forest sector. Timber production in a forest has both positive and negative effects on other forms of utilization. A forest is suitable for recreation; it is a habitat for animals and plants; it serves as a

carbon sink (storing CO₂); and it affords physical protection. The forest's capacity for the above varies according to the method of timber production (Blum et al. 1996 (1)). Silvicultural methods in Germany specially focus on combining timber production with the other positive effects of forests (Röhrig & Gussone 1990). The economic dimensions of the technological relationship between combined production of marketable and non-marketable forest goods can be demonstrated according to the "**external effects**" model (Weimann 1996). External effects are the positive or adverse effects of business activities on the business activities of others (consumption or production), with these effects being marketed or priced. Because the external effects influence forest utilization regardless of the market, they cannot be regulated by it, with the result that the market regulation of forest utilization remain below optimum. In practice, timber production adheres to markets signals, however the technically interconnected production of non-timber goods and services is so extensive that there is no price regulation due to the lack of market demand. Since the price of timber thus indirectly determines the infrastructural services of recreation and protection, among others, there is no guarantee that the services offered correspond with the economic optimum. The numerous external effects of forestry production result in market failure of important non-timber goods and services, such as avalanche protection, carbon sinks, nature and environmental protection, recreation, etc. Forest policymakers have the choice of either including these non-timber goods and services in the markets and reducing the external effects, or directly intervening to regulate the offer of non-marketable goods and services.

The strategy of **internalizing** external effects has the advantage of improving the overall self-regulatory power of the market increasing its strength in the forest sector. There are various economic models for internalizing external effects which are applicable to the forest industry (Blum et al. 1996 (2)). In practice, their application is confronted with considerable problems pertaining to recording forestry production interconnections, or assessing the costs and benefits of collective forest goods and services, which have only been resolved in part:

- New **marketing** incentives are attempting to reintegrate the collective non-timber goods and services directly in the business activities of the forestry enterprises (Mantau 1994). Innovative product concepts and the development of new institutionalized trade relationships are absolutely essential for marketing, since non-timber goods and services will only become marketable through additional new benefits. In the form of a "forest adventure programme" the unsaleable

infrastructure service of general forest recreation takes on the exclusiveness which attracts consumers willing to pay. New intermediary businesses, such as forest-related environmental agencies or tourist organizations, have to find new market partners for forestry enterprises. However the individual person is not suitable as a direct business partner, due to the excessively high sales expenditures (Mantau 1998). The instrument of certification also serves to market environmental factors, such as sustainable forestry or the environmentally compatible resource of timber. Labeling indicates the environmentally-relevant aspects of wood and increases its marketability (Upton & Bass 1996). The new product of certified wood can lend more weight to the issues of nature and environmental protection in forestry and wood processing, and is therefore also being promoted by environmental organizations (Elliot 1999). Forestry enterprises profit from certification as soon as the costs of the new products are covered by the higher returns. The impact on timber and wood product marketing has been low up to the present and remains to be seen for the future (Pajari & Peck 1999; Rametsteiner 2000). Due to business risks, and particularly because of the growing influence of environmental associations, the forestry associations in Germany were initially against certification. As a result of growing pressure from the certification schemes initiated by environmental groups, the forestry associations came forth with their own certification scheme in 1999, the Pan European Forest Certification (German Forestry Council 1999). This procedure aims at maintaining forestry stakeholders' competency to define the ecological standards of forestry and keeping costs low while still prevailing on the markets despite competition with the certification schemes initiated by environmental groups. The actual contribution towards marketing timber will be deciding factor the medium term regarding the significance of certification instruments.

- Improved **allocation of property rights** to forest products can render common non-timber goods and services negotiable between producers and consumers with the aim of achieving compensation payments. Since standardizing the rights of disposition to the previously free benefits of forests involves a large political conflict potential, politicians do not usually dare to improve the preconditions for market negotiations by creating new standards. Such an approach based on environmental liability rights and rendering negotiable the cost of external effects of business benefits, did not go far in Germany,

because the required interventions in the existing property rights would entail too much conflict potential (Endres 1994).

- State **financial support or taxation** can give the producers an economic signal concerning the availability of collective non-timber goods and services. If the financial contributions equal the cost of the external effects according to the concept of social costs (Pigou 1920, cit. according to Blöchlinger & Staehle-Witt 1993; Blum 1996 (2)), they can make up for the lacking price and help to optimize the market economy. Determining the social costs requires that the value of forest infrastructures is a known factor. The numerous scientific assessment procedures follow various perspectives and interests, although they are all geared to at economic analysis (Bergen 1999). Until the present time, their application to forest products has resulted in various values depending on the assessment procedure (Sekot & Schwarzbauer 1995). Apart from the difficulty of determining the social costs, this concept provides the most important economic grounds for **improving forest management** in the market economy by granting subsidies or levying taxes in accordance with the positive or negative external effects.

8.1.3. Regulatory Deficits of the Market Economy in Allocation and Environmental Safeguarding

The lack of optimum allocation of economic values is not considered a deficit according to the concept of the market economy, however it constitutes a significant regulatory deficit in the political utility of the market economy, which has to be politically corrected. This basically involves income redistribution and promoting the owners of small forestry enterprises, for instance. Such measures are politically legitimized by the goal of maintaining a broad scope of forest owners. This objective is not based upon free enterprise, but can be legitimized by the social market economy according to Müller-Armack, which reserves the right to intervene for the purpose of securing political goals while conforming closely as possible to the market economy (Adam 1995). However the market economy has procedures for these measures which ensure that optimizing the efficiency of free enterprise is disrupted as little as possible. The least interfering procedure involves a new and "fairer" definition of the starting capital of businesses and households (Weimann 1996, p. 286). As a result of the high political conflict potential concerning the redistribution of forest property, e.g., this measure is not practically applicable. Despite the much larger interference potential, income transfer through subsidization or taxes

has grown in significance. Control by means of price regulation is common in agriculture, although it can lead to a great loss of efficiency.

In relation to the careful use of natural resources, the market economy also has deficits which are all the more clear, the larger the volume of resources consumed by business activities (Frey et al. 1993). The elaborated processes of internalizing external effects are suitable for including the environmental burden in free market optimization in many areas. However problems still remain unsolved in the present concept of an **environmental market economy**. Especially in the face of threats to the environment, when industry and consumers deny the future burden of environmental destruction resulting from long-term impact, free market regulation cannot succeed, since this would require reasonable (rational) market partners. When politicians recognize the danger better than industry and consumers, they consider it legitimate to make corrections, even if disturbances result in the market economy. Sustainable forest management and the regulated protection of forests are important in forestry. This significantly limits the economic freedom of all those who benefit from forests (German Scientific Advisory Board 1994). Politics cannot be legitimized by the market economy due to the regulations favoring merit goods, meaning those goods which are politically considered necessary for ensuring public welfare. Forest policy should secure the natural goal of sustaining the size and quality of forests as merit goods even when free market optimization presses towards forest exploitation, i.e. forcing shorter rotation periods or higher yield species.

8.2. State Compensation for Adhering to Guidelines

8.2.1. Formal Regulation via Financial Support

Using state compensation, forest policy employs economic values directly for the purpose of regulating the forest industry. According to its regulatory impact, financial support can be differentiated from compensatory payments. **Financial support** is a monetary payment made by the state to private or public enterprises for the purpose of promoting chosen business activities which correspond with state objectives. **Compensatory payments** are monetary payments to compensate for burdens resulting from taking action prescribed by the state. Compensatory payments directly link an economic instrument with a regulatory one. Legally they are standardized as damage payments, e.g., for going beyond the social obligations of forest ownership. In addition, the Bavarian Forest Act (Article 23) prescribes compensatory

payments if obligatory measures have to be taken in protection forests. These instruments have not yet achieved any significance in law enforcement, since public forest administration prefers to solve such problems using financial support. The increasing ecological demands on the forest industry may result in an increase of legal compensatory payments, such as is the case in Nature Protection Law. Compensatory payments facilitate efficient control in comparison to financial support, because regulatory obligations additionally secure the measures taken. A comparison to regulatory instruments without compensatory payment is significant in structuring compensatory payments. In forest law, such standards are the rule for the purpose of safeguarding the public interest in sustainable forestry. They burden the owner with the costs, or prohibit forest conversion. Only in exceptional cases, does the legislator acknowledge that a private owner has been so highly burdened that he should receive compensation. The state makes an effort to grant as little compensation as possible in connection with regulatory demands in order to not burden the public authorities, nor encroach its margin of political control by means of financial limits.

Financial support measures are entirely justified in forest programs. Basically, the legitimization of this policy to aim towards social and economic objectives is based on the welfare state principle (Klose & Orf 1998, p. 710ff.). Special laws, particularly the Federal Forest Act (§41), and the law pertaining to the common duty of "improving agricultural structure and coastal protection" (revision dated 21-7-1988, Federal Law Gazette 1055), as well as the state forest laws, prescribe generally formulated individual goals of three different kinds. The objectives are as follows: 1) improving the productive structure of all forest functions (utilization, protection and recreation); 2) improving the ownership structure under special consideration of family-owned agroforestry enterprises; and 3) compensation in the face of disasters. This scheme of objectives provides for equal promotion of all forest functions, in principle. However, it still serves the purpose of ensuring that performance-oriented forestry enterprises secure all forest functions. This concept suggests that the economic conditions for timber production should be improved in the hope that this will simultaneously promote the other forest functions.

A framework plan to be stipulated by the parliament, under cooperation of the states, defines purposes, procedures and the scope of support (cf. German Parliamentary documents 13/8435 for 1997 – 2000). In accordance, the following qualify for support: I) silvicultural measures, II) forestry roads, III) forestry mergers, IV) afforestation, and V) measures to combat new

types of forest damage. The state budgetary laws and regulations standardize further details of these measures and supplementary financial support for the special needs of each state, such as grants for forest fire insurance or compensation for damage caused by disasters. As a result, around 100-125 million Euros in subsidies were made available for numerous silvicultural measures over the past years, whereby 60% of the financing is carried by the Republic and 40% by the states in the area of common expenditures around 60-75 million Euros. To cover the damage caused by windfall disasters, the republic and the states support the forest sector with additional financial means in exceptional cases, according to the extent of damage, at a sum of several hundred million Euros. The greater part of regular support is given in the form of loans, interest rate subsidies and statements of guarantee. Standard limits have been set for the individual measures, which constitute up to 85% of the creditable costs. Lump sums simplify cost projection, and additional premiums are designated for owners of afforested land.

The incentive of financial support is used for the purpose of regulating forestry activities of private and public owners of farming and forestry operations, or land owners, whereby forestry mergers receive special support. Communal forestry enterprises may also receive financial support, but not federal forest enterprises. Public forest administration is responsible for providing the support. In states that have a corresponding chamber, such as Lower Saxony, the chamber can be entrusted with this function. For this purpose, administration is bound to follow the standard criteria in the guidelines pertaining to the individual measures. The deciding criteria are the general interests formulated in the programs and the budgetary situation. The flows of financial resources are monitored by means of complicated accounting procedures, and information is provided by the parliamentary statements of account concerning all the subsidies. The process of financial support should help achieve the public goals of the forest sector using financial incentives.

Forestry subsidization policy also takes into consideration the forest-related financial instruments that are provided by the European Union. As expressed by the Forestry Strategy for the European Union (Council Decision 13990/98), the EU does not have a comprehensive mandate for a common forest policy. However, it generally follows the objective of fulfilling the international forest-related obligations made by the member states, and coordinating the impact of the common EU policy areas on forests and the forest industry. The EU's instruments for creating a financial incentive thus press, in particular, towards integration of forestry subsidies in the EU's rural development program and its environmental initiatives. According to the

subsidiarity principle, the countries develop their own promotion programs which may be eligible for co-financing from the EU depending on whether their goals correspond with those of the EU. In view of the financial support provided by the EU, forestry is included in the regional programs for rural development. On the one hand, this broadens the long-term focus of EU support for afforestation of agricultural lands through numerous measures that support sustainable forest management. On the other hand, this leads to direct competition between forestry and agriculture for financing. Economizing measures introduced by the countries pertaining to their forestry budgets indirectly increase the significance of forest-related incentives offered by the EU.

8.2.2. Deficits in the Problem-Solving Potential of Financial Support

The regulatory impact of financial support is severely weakened by deficits in the formal programs and their enforcement.

- **Coordination Deficits Regarding Maximum Efficiency of the Market Economy**

Subsidies paid by the state to individual business operations distort the self-regulation of the market economy and reduce the efficiency of the forest industry. Subsidies are only compatible with the allocative efficiency of the market economy in exceptional cases. Forestry subsidization programs generally focus on improving the economic framework, however in practice they serve a silvicultural purpose whose impact on the economy is not entirely clear. The overall assumption that timber production in a forestry enterprise also secures the other forest functions in the interest of the general public does not make it compatible with the market economy. This also applies, if co-production actually takes place. In as far as recreational or protective functions are the free byproducts of sustainable timber production, subsidies should not be granted for them in the market economy. This would only be conform with allocative efficiency in the market economy, if increased costs or reduced proceeds ensue for the forestry enterprise, and if consumers are willing to pay for the recreational or protective services. Compatibility with the market economy can only be evaluated according to each individual case by means of an economic assessment which supplements the silvicultural criteria (Salka 2000). Since such market compatibility assessments (Nieder-Eichholz 1995) are generally not conducted in practice, it can be assumed that the majority of subsidies

granted to forestry reduce the economic efficiency maximization of the forest industry.

In addition, important subsidy target goals are not compatible with efficiency maximization. Particularly the subsidization of family-owned mixed farming and forestry operations and support for small, private forest owners are political (allocation) goals which counteract optimizing the structural development of forestry according to efficiency criteria, so that only the most competitive operations can survive. Subsidizing mergers also serves more towards maintaining a broad-scoped ownership structure, rather than being in keeping with the demands of free enterprise. Nor is the comprehensive financial support granted to forestry enterprises, which have suffered a windfall disaster, necessary for economic efficiency. On the contrary, this would mean the general budget is compensating the extraordinary costs incurred to the forest sector according to prescribed allocation goals. The measures for subsidizing sustainable forest management are also partially compatible with optimizing free enterprise. On the whole, sustainable forest management strives towards higher standards that are politically legitimate, however this may burden free enterprise as merit wants. As a result the compatibility of forestry subsidization with the maximization of economic efficiency is somewhat lacking. The distortion would be greater, if there were an increase in forestry subsidization which currently amounts to around 10% of the gross value of forestry production.

- **Orientation to Measures Instead of Goals**

The concept of regulation through financial support calls for an orientation to well-defined goals. Only when the state has defined clear goals for determining the benefits of the support measure, can the economic control mechanism contribute towards efficiency. If there are defined goals, then the respective forestry enterprise and the state can weigh the costs and benefits in comparison to the necessary financial means. Improving efficiency through subsidization requires competition in fulfilling the targets set by the state. The state needs the non-timber goods and services that result from these goals, such as recreational and protective services, and forestry enterprises fulfill this demand by means of innovative and cost-efficient service offers (Scientific Advisory Board of the Federal Ministry of Nutrition, Agriculture and Forests 1994, p. 54; Federal Office for Environment, Forest and Landscape 1997).

Such objectives hardly serve to help the programs and their enforcement take shape, since the programs only formulate general objectives whose relationship to specific measures remains unclear. In terms of enforcement, the deciding factor is whether or not the individual criteria of the measures are fulfilled, whereas the main objective of the supported project is disregarded. The promotion of certain measures creates an incentive to conduct forestry management in the manner prescribed by the state. By linking enforcement and control to the fulfillment of certain measures, the state forgoes the opportunity to monitor or optimize the impact of support on achieving public forest objectives (Zimmermann et al. 1993, p. 109). In addition, the prescribed measures limit the innovative steps taken by those receiving support. The low degree of orientation to objectives weakens the legitimization and efficiency of forestry subsidization.

- **Profit-Taking by Those Receiving Subsidies**

The efficiency of financial support depends upon how much it actually influences forestry enterprises. The influence is reduced when financial incentives are offered for action which the grant recipient would have taken out of self-interest, even without any financial incentive. If a forestry enterprise can finance a logging road it needs to facilitate logging, it can nevertheless benefit from state subsidization. However the state has not achieved its objective by granting this subsidy, because the logging road would have been built regardless. Since so-called "cashing in on profits" is connected with actual interests of the grant recipient, which only partly have to do with economic calculation, the concept goes beyond the postulation of a "*homo oeconomicus*" in economic theory (Scharpf 1983). Even when someone takes ecological measures for silvicultural purposes that do not pay off economically, there is a profit-taking effect as soon as this voluntary action is financially supported by the state. The extent of cashing in on profits in the forestry is unknown. However, analyses by Kurki (1991) have indicated considerable profit-taking with regard to subsidies for stand-tending operations. The danger of profit-taking increases according to how closely the subsidization measure is related to timber production, since the market also gives forestry enterprises incentives to improve their production. Forestry co-production also makes it more difficult to evaluate profit-taking effects. To avoid profit-taking effects, the state or the subsidization program should have a very good knowledge of the interests of the grant applicant. Since the comprehensive evaluation of individual cases is costly in enforcement, as well as going to the limits of expert analysis, profit-taking

effects are unavoidable to a certain extent, despite all the general regulations and subsidization rates.

8.2.3. Informal Use of State Compensation

Informal strategies play an important role in managing financial means. In practice, an informal orientation forces the formal concept of subsidization into the background, i.e. the contribution to achieving public goals, efficiency of applying the means, and compatibility with the market economy all lose importance. In contrast, the informal advantages, which the applicants expect from being granted financial support, are increasingly significant. The informal factors explain why financial support, which is critically evaluated for the most part in keeping with the concept of the market economy, has nevertheless developed into an instrument which is widely implemented and valued by policymakers. Since politicians can exert a direct influence by granting subsidies, they are also sceptical towards self-regulation of the market using other instruments. Politicians may value the market's self-regulatory potential, yet if they are threatened with a loss of influence, they will informally defend subsidization and dispute the possibility of market self-regulation, even if this were to be more efficient.

- **Provision of External Support**

The allocation of financial resources is an important state instrument for providing general support to recipients as well as establishing support in the face of certain conflicts (Krott 1986 (2)). Nevertheless, the widespread informal strategy of securing votes by granting subsidies shortly before elections does not play a major role in agriculture and forestry. Since sector-related electorate is so marginal, administration and interest groups make an effort to exclude subsidies from any uncertainty or possible control by the electorate (Beusmann & Hagedorn 1983, p. 59). The determining factor is the effort made by politicians and special administration to secure the support of forest owners, in particular, through annually available subsidization. Preferential treatment of financial support has advantages for both sides. The state creates allies, and the associations or their clients can get back a portion of what they have had to pay in taxes.

Financial support can also ease conflicts which have arisen as a result of new regulatory instruments. For instance, forest owners in several states have had the cost of forest fire insurance supplemented by subsidies to cover the burden of their having to grant forest access for recreational purposes.

Regulatory requirements in forests with special public functions, such as protection or recreation forests, are more likely to be accepted by the owners when they are linked with financial support. The concept of compensation makes a formal rule of the informally widespread mode of conflict alleviation through financial support. However, due to its binding effect, it allows the state and the individual associations less leeway for negotiation in conflict alleviation than would be the case with informally granted financial support.

The growing acceptance generated by financial support also increases the enforcement potential of forest administration. The chance of being granted a subsidy is an incentive for forest owners to accept advisory services. Through advisory services, administration can influence the efficient use of financial support and simultaneously compiles data for the purpose of monitoring (Krott & Riedel 1995). Without the incentive of financial means, forest administration would have difficulty approaching forest owners, and the synergy between financial incentives, increased efficiency through advisory services and increased monitoring information would not come into being.

- **Financial Support as an Administrative Resource**

Whereas the financial means for forestry subsidies burden the budget from an economic perspective, these means constitute a substantial increase of financial resources for forest administration. The size of a budget and its development codetermine the potential force and influence of any special administration body (Frey 1981). The expertise required to grant subsidies gives forest experts margin for action in contrast to enforcement via regulatory instruments which is limited by legal stipulations and administrative law. Informally, all special administration bodies thus urge budget maximization (Niskanen 1971). Forest administration also informally promotes the broadest base of forestry subsidization in its self-interest.

- **Exhausting the Budget**

Administration is under informal pressure to exhaust the financial means available in its annual budget. On the one hand, this informal pressure is based upon the formal difficulty of transferring financial means from one year to the next and saving up financial reserves. If the financial means are not spent, the administrative unit may lose them. On the other hand, there is the basic problem of political control in the background. The annual

allotment of financial means is one of the politicians' few opportunities to influence administration, the effect of which is diminished by administration's own financial reserves. In addition, the performance of special administration bodies is difficult to measure in terms of targets. The volume of implemented (financial) means is thus considered indicative of active administration bodies. An special administration body, which is not capable of exhausting its budget, either creates the political impression that it has not optimally fulfilled its functions, or that it could fulfill them just as well with less financial means. In both cases it would be threatened with budget cuts involving a loss of resources and potential for action.

The informal pressure to fully utilize financial aid forces the subsidization requirements to be lowered to a standard acceptable for grant applicants. Since not enough forest owners are willing to apply for subsidies with strict standards, such programs are not established by forest administration, although they might be highly efficient. Granting of subsidies is easier for administration in the framework of subsidization programs that conform with the applicants' interests, e.g. by means of high subsidy rates that only require a small share of proprietary interest. Lump sums even enable the owners to profit from state subsidies through their own work. The formally undesired profit-taking effect is informally targeted to facilitate implementation of subsidies.

- **Incremental Negotiation of Financial Support**

The fact that those involved – politicians, special administration bodies, applicants and their associations – all advocate financial support, leads to substantial allocation conflicts in the course of setting up budgets and programs. These conflicts are only dealt with to a very minor degree according to the formal concept of objectives and the corresponding assessment of financial needs. More important is the incremental rule that uses the budget of the previous year as the benchmark for the next budget allocation (Peters 1995). Informally, the entire budget of subsidy funds is not available for disposition, instead there are only minor changes made in the previous allocation. This orientation creates substantial relief. For instance, the negotiations in the subsidy planning committee in the scope of the common functions of federal and state representatives, take for granted that each state will receive approximately the same share as it did in the previous year. Any change, whether it be a reduction or an increase, it requires extensive argumentation and political lobbying. Those involved hope that the incremental strategy provides them with a low-risk, well-balanced

solution despite very patchy information on the power structure, since the compromise negotiated the previous year promises to be accepted in the following year, as well.

The informally predominant orientation to the status quo in budget allocation contrasts with setting new focal points and reducing existing subsidy programs. Additional posts can rarely be funded by budget reallocations; as a rule, either budget increases are required, or new budgets have to be allocated. Incremental conflict-solving forces subsidization budget increases. In this sense the reform incentives, which aim to regulate subsidization by setting clear goals and performance agreements based on the concept of new public management, are drawing on an important informal mechanism. The success of this new line of orientation will depend on whether it can develop sufficient political clout for comprehensive targets to be set up wherever strategies are still lacking (German Federal Office for Environment, Forest and Landscape 1997).

8.3. Support via State Extension Services

From financial support by the state for private forestry, as well as advisory services, it is only a small step to forest extension services for private forest owners. Public forest administration bodies have actively offered diverse extension services for a long time, and they take over tasks, such as business planning, organization, forestry work and timber sales support, to varying degrees (Abel 1996). Extension services are provided mainly for municipal forests and forestry cooperatives, as well as small-scale private forests. Several state forest acts have standardized extension services for municipal forests in the form of a separate mandate given to public forest administration. In addition, the public forest administration bodies also take over maintenance work related to landscape and environmental protection, e.g. maintenance of hedgerows, meadows or specific biotopes.

By providing extension services, public forest administration is, in effect, conducting its own forestry enterprise. According to the basic law code, the state is only permitted to conduct such activities in exceptional cases which fulfill a public function (Ronellenfitsch 1996). Forest extension services provided by the state are not bound to be commercially profitable for the public forest administration body. In contrast, along with advisory services and financial support, they should serve public goals, particularly the promotion of small privately owned forests and securing of the protective and recreational functions of the forest. Nevertheless, conducting its own

business activities requires even better reasons than subsidies do, since private business activities are usually conducted in the scope of the market economy. It is prohibited to broaden forest extension services to include activities that forest owners can conduct themselves in the frame their own business activities in the market economy. This limitation has caused much difficulty in practice, since there isn't a precise border between the business objectives of the owners and forest extension services, i.e. forest management planning or sales support. The standardization of forest extension services is underway in compliance with the Forest Act and the administrative guidelines of the states. The comprehensive extension service mandate, particularly concerning municipal forests, is criticized by representatives of the private industry with reference to the problem of legal limits. The controversial political debate, concerning the state forest as well as its commercial and forest policy activities, is aimed at defining public forestry tasks to legitimize and limit state activities in the forest industry (Helmstädter et al. 1993; Volz 1994; Borchers 1996; Becher 1997).

The tense relations between state activities and maximizing efficiency in accordance with the market economy, or whatever the owner's will may be, is even more difficult with regard to state extension services. Forest extension services conducted by the state have an even stronger influence on the owner than advisory services or financial support may. By conducting forestry work in private and municipal forests, the state directly fulfills public goals. However this runs the risk of infringing on the business owner's responsibilities which might weaken the market economy on the medium-term.

Regardless of such regulatory risks, the general business operations of the state, and those in forestry in particular, amount to a considerable extent. The reason for this can be seen in informal factors which compel the state to take over certain business activities. Without being able to delve more deeply into the informal development of state business activities at this point, three informal mechanisms will be pointed out, which play a role in forest extension services. First of all, the high efficiency of forest extension services makes this an informally attractive instrument of public forest administration, because it enables formal and informal goals of forest administration to be directly implemented in municipal and private forest holdings. Secondly, informal growth targets also force administration into conducting business activities. Thirdly, in the scope of the regulatory concept, private owners are informally interested only in the profit-making activities of forest extension services. As demonstrated by advisory services, those services that are not in high demand are not offered by private

businesses. Administration is right in fearing a critical reorientation of forest extension services from the perspective of common welfare, if state extension services were to be dropped entirely.

8.4. Mandatory State Taxes

Mandatory taxes constitute the opposite of state financial support. They serve mainly to finance the state budget. However, since financial transfer can change the behavior of tax payers, it is comprehensively employed for the purpose of political regulation.

8.4.1. State Tax Revenue

Taxation is the transfer of economic values (money as a rule) to the state by natural or juristic persons, who are obligated to do so, without any special service provided in return. In the form of taxes, people hand over financial resources to the state, giving the state the financial power of action (Kirchhof 1990). The state is to utilize this financial power exclusively for the purpose of fulfilling its public functions. The allocation of tax revenue independent, of the kind of tax money it derived from, should ensure the leeway required to optimally fulfill public tasks. The actual services provided in return for mandatory state taxes thus constitute all the state's activities, including forest policy regulation. Legitimization of taxation is mainly based upon the taxes historically levied by the state (formerly the kingdom) for the purpose of financing community services (Schmölders & Hansmeyer 1980). In the forest sector, such state services are presumably much higher than the taxes paid by the forest industry. Whereas the taxpayers cannot receive more from the state than they pay in taxes, this ratio is more favorable in certain sectors. Nevertheless, the modern state is not based upon voluntary taxation in the forest sector, nor is it so on the whole. In contrast, the state secures its main source of revenue by means of a tax monopoly with mandatory taxation (Matzner 1982). Only the state has the legal right to levy mandatory taxes in the form of monetary values from private persons.

The parliament regulates taxation. It regulates state revenue by law, and with the annual budgets it ensures the financial revenue is paid back to taxpaying citizens in the form of state services. The basic law code requires all revenues and expenditures to be comprehensively recorded, to ensure parliamentary control of government and administration. Taxes can be levied

on any business activity, particularly a running income, whereby mainly the monetary flows between private households and business enterprises are affected (Grossekettler 1995). The basic law code standardizes a very broad framework for levying taxes. Based upon this, the parliaments have developed comprehensive legal terms of taxation. These do not follow one uniform concept, instead they are compiled from diverse regulations. They have developed historically over the course of the political process and are highly complex, even in well-defined sectors such as agriculture and forestry (Kroth 1960 & 1980; Althoefer et al. 1993). Forestry activities are subject to a great number of taxes. These mainly comprise income tax, property tax, inheritance tax or gift tax, as well as sales tax (Möhring 1994). All the different kinds of taxes cannot be dealt with individually at this point; instead special attention is called to the theory of business taxation (Köhne & Wesche 1995; Althoefer et al. 1987). Nevertheless, central political regulation processes shall be used to elaborate the tax system.

Whereas the formal extent of taxation is determined by decisions made through parliamentary consensus and is geared to public functions, taxation is informally a field of great political conflict, in which important factors have the effect of increasing state revenue, as well as defining the limits of state control.

- Tax revenue the power of the state are historically interrelated in the form of a self-expanding regulatory cycle (Matzner 1982). Only a strong central state power, which has the support of military forces, is capable of levying taxes in the face of civil or social resistance. On the other hand, by means of levying taxes, the state gains the potential to increase its power and levy new taxes. This historically proven link clearly indicates that taxes do not only involve public consensus with regard to public tasks and the financing thereof. Informally, taxes also safeguard state resources, in as far as the state is able to assert its authority. The relatively low percentage of taxes paid by the forest industry thus also indicates their successful rejection of attempts by the state to increase taxation.
- Since the state levies taxes on business proceeds, the total of proceeds determine the maximum tax revenue. It therefore makes sense for the tax authorities to avoid hindering the efficiency of the market economy, in order to achieve higher tax revenue on the basis of higher production rates. The tax revenue in Germany, mainly from production factors and income tax, has the effect of hindering growth in the above sense. This has repeatedly been subjected to tax reforms (Grossekettler

1995). The absolute taxation limits for business proceeds presumably play a decisive role in the low rate of tax revenue from the forest industry, since the potential yield of this sector is known to be very low in comparison to the forest and landed property assets.

- Government and administration informally promote the growth of their own resources. The tendency of administration to grow has already been elaborated several times, however government also requires enormous, short-term funds independent of its programs (Rose & Karan 1983). Government gives preference to ease the financial strain by means of economic growth or granting credits, as a last resort. Taxes are only raised if both of these financial resources prove insufficient. The political opposition is only opposed to raising taxes in its role as the opposition. As soon as it becomes active in government, it has to finance the state which forces it to increase revenue by raising taxes and public-sector borrowing. The growth rate tendency of the public sector means that the pressure on the forest sector to make proceeds will not decrease.
- Depending on their tendency, the various political ideologies prepare the grounds for increasing or reducing taxes. The social democratic models tend to depend on high tax revenue to increase public services. The liberal and conservative concepts consider high taxes to constitute a threat to business. In the forest policy discussion pertaining to deregulation and reduction of state activities in forestry, these positions are reflected when exceedingly high tax burdens, due to subsidized public forest administration, are criticized by financial politicians. In times when funds are lacking in state budgets, private business concepts are more likely to be implemented than concepts involving tax money to support sustainable forest management and promote the protective and recreational functions of state forests.

8.4.2. Taxation as a Private Compulsory Levy

For taxpayers, taxes are compulsory levies that reduce their buying power. The duty to pay taxes arises from being the citizen of a state and benefiting from the services it provides, among others. According to the principle of common interest, a state is to be financed by all its taxpayers, and not solely by individual groups (Kirchhof 1995). As a result, practically all those persons, who benefit from forests, are obliged to pay taxes. However the tax burden is not equally distributed among the entire population of a state,

instead it is in relation to the private finances of each individual. Through taxation, the state has a part in private business. This concept makes it possible for taxes to be regulated in conjunction with the protection of private property, which would originally seem to contradict the idea of mandatory taxes. The state protects private property and thus secures an important precondition for private business enterprise. This decision in favor of private business means forgoing state control of business assets, and only leaves the state the option of financing its own activities by taxing the private business sector which it protects in turn by guaranteeing private property ownership.

The concept of financing the state protection of private property with tax money legitimizes the basic compatibility of mandatory taxes and guaranteed private ownership. However it also limits the amount of taxes. Taxes should only skim off the proceeds from private property ownership, to the extent that it is still worthwhile to own and use private property, otherwise the goal of safeguarding private enterprise cannot be attained. Taxes should not jeopardize a sufficient annual income from capital and labor. The specific concept for the forest sector is politically founded by these taxation limits. They indicate the special circumstances of forestry production, which need to be taken into consideration when formulating the basis for tax assessment and the tax bracket, to ensure that taxes do not pose a threat to private forest industry.

As special circumstances, Kroth (1980) lists, among others, the identical nature of the capital good of "timber growing stock" and the main product of "timber;" the long-term production period; the time delay between expenditures and returns; the high capital investment; the low capital interest and the great difficulty of valuing the most important business capital in the form of the timber growing stock. The resulting special regulations for forestry taxation involve, among others, income tax, where profits are calculated based on the profits of the timber harvest instead of the usual method of comparing business capital at the beginning and the end of the fiscal year. The timber growing stock is not taken into consideration in this method. For any utilization over and above sustainable timber harvest due to natural disasters, e.g. windfall calamities, this profit and loss accounting results in too heavy a tax burden, since the loss of timber stands is accounted for. Tax law also allows special regulations for the forest industry in this concern, and has set a lower rate for extraordinary income. There are also important special regulations regarding property taxes and inheritance or gift tax. In contrast to the real market value, these are calculated on the basis of an "assessed value" which is determined according to the sustainable net

profits. This procedure takes into account that the high market value is in contrast to a far lower earning power from which the taxes have to be paid.

The special regulations elaborated in the above examples are meant to improve the formally required coordination of taxes with the earning power of the forest sector. However they also show how this increases the complexity of tax law. As a politically important consequence, the margin for informal negotiation simultaneously increases enabling the taxpayers and their interest groups to focus on keeping taxes as low as possible. In this manner, special forestry regulations exclude the high value of the timber growing stock from direct taxation which gives preference to the resulting extraordinary income, in part. By means of special fiscal regulations, forest owner interest groups have apparently succeeded in increasing the private profitability of forest property, particularly by increasing the growing stock in forests. Prior to the forest owners' success, their interest groups were intensively engaged in political work, whereby fiscal policy was considered one of their most important task fields.

The tax-related activities of the associations adhere to the logic of power, this specifically being a rent-seeking process (Grossekettler 1995). The associations struggle to achieve special advantages, such as tax relief or subsidies, for their limited field of clients. On the other hand, it is less profitable for them to build up resistance against special advantages which have been granted to other groups. Equal engagement would also be called for here, although no direct advantages are to be had for their own group. Taxpayers also only have little information on how the tax system distributes burdens or special advantages. It is not worthwhile for the taxpayer to put up resistance against the special advantages granted to certain groups, since any relief that might be achieved would not be noticeable to the individual. The political influence of the associations results in tax relief for certain groups increasing taxes for the general public to secure the required state finances. This informal strategy creates advantages for forestry, and particularly forest owners, but it burdens all taxpayers, in general.

Taxpayers put up a substantial informal resistance to mandatory taxation. Taxpaying morals also influence the willingness to pay taxes. In the German-speaking countries, where taxes were historically seen as a contribution to the state, taxpaying morals are considered higher than in the countries of the Romance languages, where the tradition of taxes as a tribute to Rome is still evident (Schmölders & Hansmeyer 1980). However, the technical structure of the tax system would seem to have more effect than the taxpaying moral. A broad-scoped tax base with low tax rates provides less

cause for resistance than high tax rates for a few limited activities. General taxes, such as income and sales taxes, leave less alternatives for taxpayers than special taxes. The German tax system makes use of this access advantage in that around 75% of its tax revenue comes from (general) income and sales taxes.

8.4.3. Regulatory Taxation

The forest owner can react to the taxation of certain business activities by adapting in order to reduce those activities and the taxation thereof. Whenever the state intends to induce this change of behavior, this is called regulatory taxation (Frey 1981). Regulatory taxes change prices thus creating incentives for investments, exports, business relocation in underdeveloped regions, improved environmental performance or reduction of environmentally harmful emissions or production methods, e.g.

Regulatory taxes combine state financing with other political objectives for the development of the forest sector. Although this is not specifically provided for in the basic law code, such an interconnection is now considered permissible. However, the distinguishing factor of taxes has to be maintained, i.e. the revenue has to exclusively serve towards financing the state, and it should not be so high that the specific activity is entirely discontinued and the source of revenue dries up. In addition to fiscal competency, the legislator needs to have practical competency in the sector where norms for regulatory taxation are being established. This way the state can only implement regulatory taxes in the forest industry within the scope of its own (very limited) forestry competency.

Concerning regulatory taxation, the same dangers apply to its compatibility with maximization of efficiency in the free market as do to state subsidies. Only in exceptional cases do fiscal incentives improve the efficiency of the market economy. Tax relief always serves the business sector concerned, however it does not increase the state economic performance, as a rule. The current taxation of large forestry enterprises provides an incentive to establish forests with a rich inventory of growing stock and longer rotation periods (Möhring 1995), which simultaneously promotes the objectives of nature protection and recreation. Such contributions to merit wants do justify the regulatory effect which, however, still may not be in keeping with an efficient state economic performance. Tax relief is also provided for small private forest holdings, whose promotion is likewise a merit want rather than an economic priority.

The effect of regulatory taxation also depends on the reactions of the businesses enterprises, as well as the consumers. These reactions are diverse and often indirect, which makes them difficult to record or predict for the purpose of devising the tax base and the tax rate. For instance, the tax burden can be transferred to the client when the market is strong without any change in buying behavior. The introduction of an environmental tax for consumption of energy that burdens the environment is an example of the difficulties encountered in regulatory taxation. The basic idea here is to reduce consumption of environmentally incompatible energy sources by increasing the taxes on them, and to decrease pension scheme contributions as a form of financial compensation for the business. The incentive has a variable effect depending on the production-cost structure. Agriculture and forestry are particularly affected by the increase in energy costs, since the compensation they receive through reduced pension scheme contributions is low and depends on the limited number of persons they employ (Hillebrand 1999). In addition to the technical uncertainty of the impact, there are the lobbying activities of business representatives who have succeeded in achieving exemptions for those operations that consume a lot of energy. In as far as this goes, it should be remarked that regulatory taxation poses a substantial difficulty as an tool for incentive, and the resistance of corresponding interests groups can additionally limit the political leeway. An optimum structure for achieving regulatory impact is difficult to find as a rule, so that the concept of regulatory taxation often serves to legitimize new kinds of taxes. Forestry taxes do not have a comprehensive technical concept of regulatory taxation. Instead the incentives for providing nature protection and recreational functions serve as the basis of special fiscal regulations, which the corresponding businesses hope will lead to tax relief.

8.5. Further Forest Policy Research

In complete contrast to the attention given to the economic processes in forest policy making, forest policy studies rarely attempt to analyze the economic instruments. The deficit in this area of policy research is due to the strong position of economic research in the forest sector, on the one hand, and the strong position of business and economics, on the other hand. The principle of secrecy applies to important economic decision making in practice. The decision-makers deter from disclosing everything and, because of their powerful position, they are able to avoid becoming the subject of political studies. The more often forest policy research delves into the field of financial decision making, the more often it is confronted with closed doors. These limits are far less applicable to economic studies, because they

are usually not interested in those decisions based on power, rather in the economic processes of an ideal world of rationally behaving stakeholders.

The success of economic research, itself, also hinders policy researchers' access to the subject of research, because the highly developed theories in political economics and business administration can explain the essential characteristics of economic instruments when they are applied to forestry. The field of political economics includes the study areas of "political-economic policy," which implies that it also deals with political issues. Forest policy research is therefore always inclined to examine the economic instruments according to an economic approach. Many significant findings have been thus made, such as Bergen (1993), however the power processes, which are particularly important in policy research, are mainly excluded from analysis. Reference to the numerous existing studies on subsidies and taxes in forest economics does not help further, because these analyses also exclude those issues relating to power, which are interesting for policy studies on account of their approach.

Most recently, forest economic studies have attempted via new approaches beyond that of neoclassic economics, e.g., institutional economics, to delve more deeply into the area of policy analysis (Schmidt 1999). The well-developed concept of the "New Political Economy" (Frey 1981) would also be helpful in this respect, however it has not yet been taken up by forest economists and comprehensively applied to forestry. Regarding the findings on policy-determining power issues, the results of these analyses will not be satisfactory, as seen from past experience using general institutional economics. The search for fair coordination processes promoting social equilibrium (comparable with the political-economic goal of achieving maximum national economic efficiency) constitutes the focus of attention (Von Wulffen 1996). The concept of social equilibrium (or maximum efficiency) blocks the view of the power processes of the political players who are interested in asserting their interests, and not in achieving an equilibrium or maximum efficiency.

In summary, it is recommended that economic analyses be used as sources for further forest policy research, however one should be aware that the existing lack of findings on economic power processes is the result of the research approach, which does not reflect reality. Information on the power processes in the application of economic instruments is best provided by analyses from the fields of environmental policy or environmental economics (Wicke 1993; Frey et al. 1993), and political studies of economic policy (Adam 1995) which, however do not supply any findings on the field

of forest policy. In the forest sector, reference should be made to the study by Weiss (1999) on protective forest policy in Austria with reference to the political dimension of economic instruments, the analysis of the international development of certification by Elliott (1999), and the analysis of forestry subsidization policy in Slovakia by Salka (2000).

The English-language literature available in Europe comprises a wealth of economic analyses of economic instruments, however political issues are hardly ever the subject of research. The power process evolving due to the economic instruments has not been made a topic of study in accordance with the tradition of economic theory. Recently, two collections of articles have chosen to take a more open approach to the political aspects, while maintaining an economic focus (Blasten et al. 2001; Ottitsch et al. 2002).